DENTAL HEALTH SURVEY OF 8-12 YEAR OLD SCHOOL CHILDREN IN CHEUNG CHAU ISLAND, HONG KONG 1984

SUPERVISED BY
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INTRODUCTION

The insufficiency of oral health data (both quantitative and qualitative) relating to school children in Hong Kong has long been felt. The survey reported by Law (1981) conducted on a sample of Hong Kong School children, was the first to be carried out since 1968.

The objectives of our survey were:

1. To determine:
   a. caries status and treatment needs
   b. periodontal status and treatment needs
   c. levels of dental fluorosis
   d. oral health knowledge and attitudes of children
   e. oral health knowledge and attitudes of teachers
2. To compare oral health status in Cheung Chau and Hong Kong
3. To design an oral health programme for Cheung Chau children .

Cheung Chau is a remote island off Hong Kong. A proportion of the children live on fishing boats and spend a considerable period of their lives at sea and thus attend school irregularly. For convenience, the island children will be called fishermen and non-fishermen.

PLANNING

Planning are preparation commenced at the end of 1983 and the survey was conduted in March 1984.

The following matters were attended to during the planning phase.

1. General information was collected on schools in Cheung Chau.
2. Letters were drafted and sent to the school headmasters advising them of our intentions and requesting their co-operation.

3. Two preliminary visits were made to Cheung Chau to discuss the survey date and to check on facilities that were necessary for the physical arrangements for the survey.

4. A trial run was conducted in the Department of Children's Dentistry and Orthodontics.

5. The questionnaires were developed and finalised and tested on a pilot sample.

6. The sampling method and statistical analysis was discussed with Dr. Chan, Data Processing Unit.

7. Accommodation was arranged for the three night stay in Cheung Chau.

METHODS

There are seven schools on the island. One of them is for children from the fishermen's families. This school was selected and two other schools were randomly selected from the remaining six. Children aged 8-12 years comprised the study population. The children were selected by a multistage cluster sampling technique. Altogether 378 children were examined - 216 fishermen and 162 non-fishermen (Table 1).

Caries status and treatment needs and dental fluorosis (see Appendix) were assessed according to guidelines and criteria laid down by the World Health Organisation and were recorded on the standard combined oral health and treatment need assessent form (see Appendix). Periodontal status and treatment needs were assessed using the new Community Periodontal Index of Treatment Needs Index, CPITN.

The examinations were conducted by 4 examiners and the results were recorded by dental surgery assistants. During the examinations the children lay on portable dental chairs and illumination was provided by fibre optic light reflected from a disposible mirror. For the caries examination a sickle-shaped probe was used and for the periodontal assessment the WHO 621 probe was employed. The teeth were not dried prior to the examinations. Prior to the examinations, calibration of the examiners was carried out, and within-examiner and between-examiner variability was monitored from time to time. Data relating to knowledge and attitudes was obtained through questionnaire (see Appendix) which was designed and tested on a pilot sample. In addition information was obtained from teachers through a semi-structured interview (see Appendix). Throughout the period of the survey, oral health education classes were conducted in the classrooms after the completion of the clinical examinations and the interviews.

Table 1 - Number of children surveyed by age and sex

Age	Fishermen			Non-fishermen			Total
	Male	Female	Total	Male	Female	Total	
8	22	25	47	12	10	22	69
9	27	19	46	15	23	38	84
10	33	18	51	16	9	25	76
11	30	3	60	25	25	50	110
12	3	9	12	11	16	27	39
Total			216			162	378

SCHEDULE

The survey schedule was as follows:

1st day - Cheung Chau Kwok Man Primary School.

2nd day - Cheung Chau Fisher's Joint Association School.

3rd day - Cheung Chau Sacred Heart School.

1. Clinical examination.

2. Interviews with children and teachers

3. Oral health education to all classes in the school.

RESULTS

FINDINGS FROM THE CLINICAL EXAMINATIONS

DENTAL CARIES

Caries prevalence in the deciduous dentition was very high (Tables 2 & 3 and Figures 1 & 2). In these figures, and in subsequent figures, results for fishermen will be shown in the left hand column and the results for the non-fishermen in the right hand column. Almost 100 percent of the age 8 fishrmen had one or more dmf teeth and 90 percent of the non-fisherme had one or more dmf teeth. These values decrease with age, as the primary teeth exfoliate.

The details of the dmf index are as follows. At age 8, the dmf for the fishermen was 5.6 and none of these children had any filled teeth, whereas the non-fishermen had a mean of just over one filled tooth per person. in fact, the fishermen at all ages did not have any fillings. Non-fishermen by contrast did have some fillings. The number of missing teeth in all groups was low.

The caries experience in the permanent dentition is shown in Tables 4 & 5 and Figures 3 & 4. The percentage of children with one or more DMF teeth increases from about at 50 percent at age 8 to about 70 percent at age 12. The differences between the fishermen and the non-fishermen are not great and appear to be random.

The DMF of the fishermen at age 8 was one decayed tooth, but for the non-fishermen it was one filled tooth. Again, we found that the fishermen did not show evidence of restorative treatment. DMF increased with age and the non-fishermen at age 12 had a DMF of just over 2, of which 0.5 teeth was filled and a mean of 1.5 teeth were decayed.

Table 2 - Caries experience in the deciduous dentition of the fishermen

Age	Number of Children Examined	Mean number per child					Percentage of children		
		Decayed Teeth d	Missing Teeth m	Filled Teeth f	dmf	Decayed teeth requiring extraction	With one or more dmf teeth	Requiring one or more fillings	Requiring one or more extractions
8	47	5.2	0.4	0.0	5.6	0.2	97.8	27.6	6.4
9	46	4.1	0.0	0.0	4.1	0.1	91.3	4.0	8.7
10	51	1.9	0.0	0.0	1.9	0.0	68.6	0.0	0.0
11	60	0.8	0.0	0.0	0.8	0.0	43.3	0.0	0.0
12	12	0.3	0.0	0.0	0.3	0.0	16.6	0.0	0.0

Table 3 - Caries experience in the deciduous dentition of the non-fishermen

Age	Number of Children Examined	Mean number per child					Percentage of children		
		Decayed Teeth d	Missing Teeth m	Filled Teeth f	dmf	Decayed teeth requiring extraction	With one or more dmf teeth	Requiring one or more fillings	Requiring one or more extractions
8	22	2.1	0.5	1.2	3.8	0.1	90.1	18.2	4.5
9	38	2.2	0.1	0.3	2.6	0.2	71.1	21.1	10.5
10	25	1.8	0.0	0.5	2.4	0.0	76.0	12.0	4.0
11	50	0.8	0.0	0.0	0.8	0.0	34.0	8.0	0.0
12	27	0.5	0.0	0.0	0.5	0.0	25.9	0.0	0.0

FIGURE 1

PERCENTAGE OF FISHERMEN (LEFT COLUMN) AND NON-FISHERMEN WITH ONE OR MORE dmf TEETH

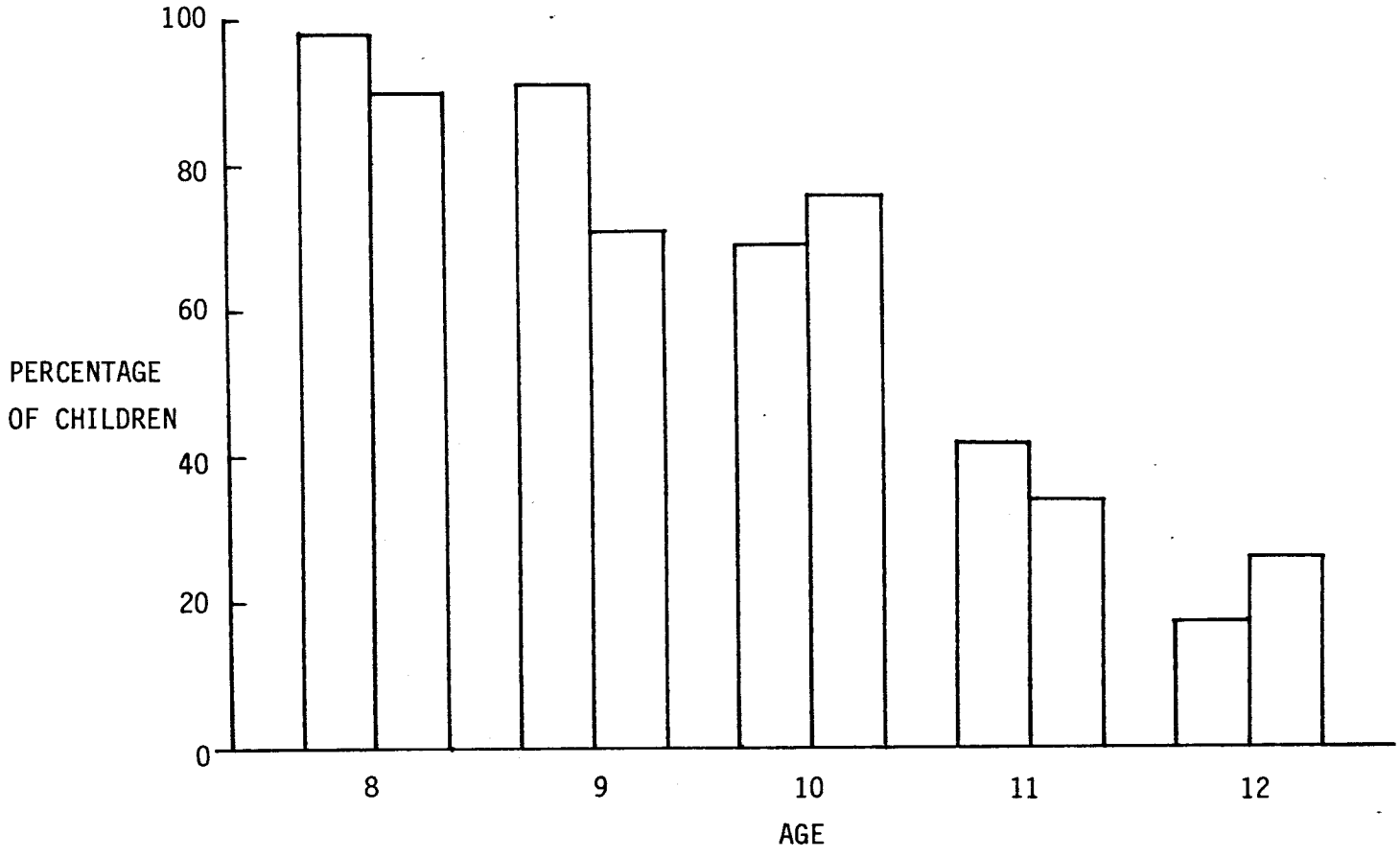


FIGURE 2

CARIES EXPERIENCE OF THE DECIDUOUS TEETH OF FISHERMEN (LEFT COLUMN) AND NON-FISHERMEN

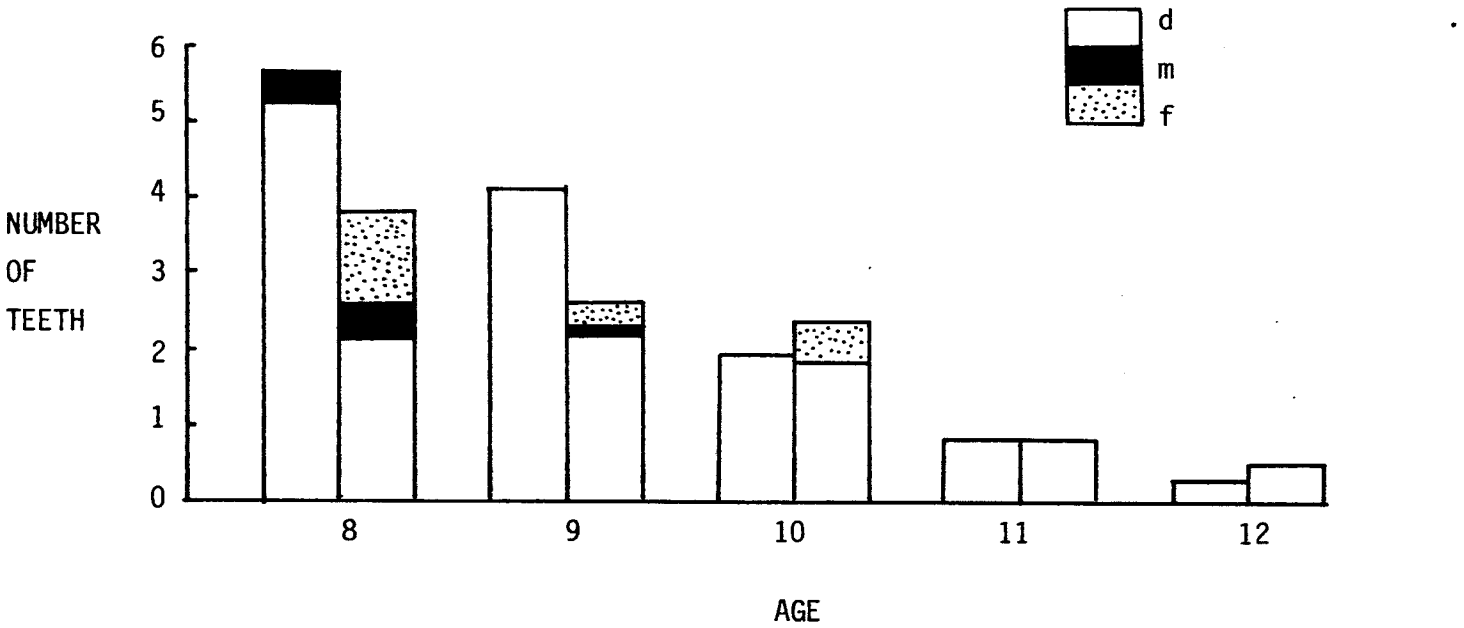


Table 4 - Caries experience in the permanent dentition of the fishermen

Age	Number of children examined	Mean number per child					Percentage of children		
		Decayed teeth D	Missing teeth M	Filled teeth F	DMF	Decayed teeth requiring extraction	With one or more DMF teeth	Requiring one or more fillings	Requiring one or more extractions
8	47	1.0	0.0	0.0	1.0	0.1	53.2	51.1	8.5
9	46	1.4	0.0	0.1	1.5	0.2	65.2	63.0	10.9
10	51	1.2	0.0	0.0	1.2	0.2	52.9	45.1	13.7
11	60	1.7	0.1	0.1	1.8	0.5	75.0	68.3	26.7
12	12	1.1	0.1	0.2	1.4	0.4	58.3	50.0	25.0

Table 5 - Caries experience in the permanent dentition of the non-fishermen

Age	Number of children examined	Mean number per child					Percentage of children		
		Decayed teeth D	Missing teeth M	Filled teeth F	DMF	Decayed teeth requiring extraction	With one or more DMF teeth	Requiring ore or more fillings	Requiring one or more extractions
8	22	0.1	0.0	1.0	1.1	0.0	54.5	9.1	0.0
9	38	0.4	0.0	0.7	1.1	0.0	44.7	26.3	0.0
10	25	0.8	0.0	0.2	1.0	0.1	60.0	56.0	8.0
11	50	0.9	0.0	0.3	1.2	0.2	66.0	46.0	16.0
12	27	1.6	0.0	0.5	2.1	0.4	74.1	63.0	18.5

FIGURE 3

PERCENTAGE OF FISHERMEN (LEFT COLUMN) AND NON-FISHERMEN WITH ONE OR MORE DMF TEETH

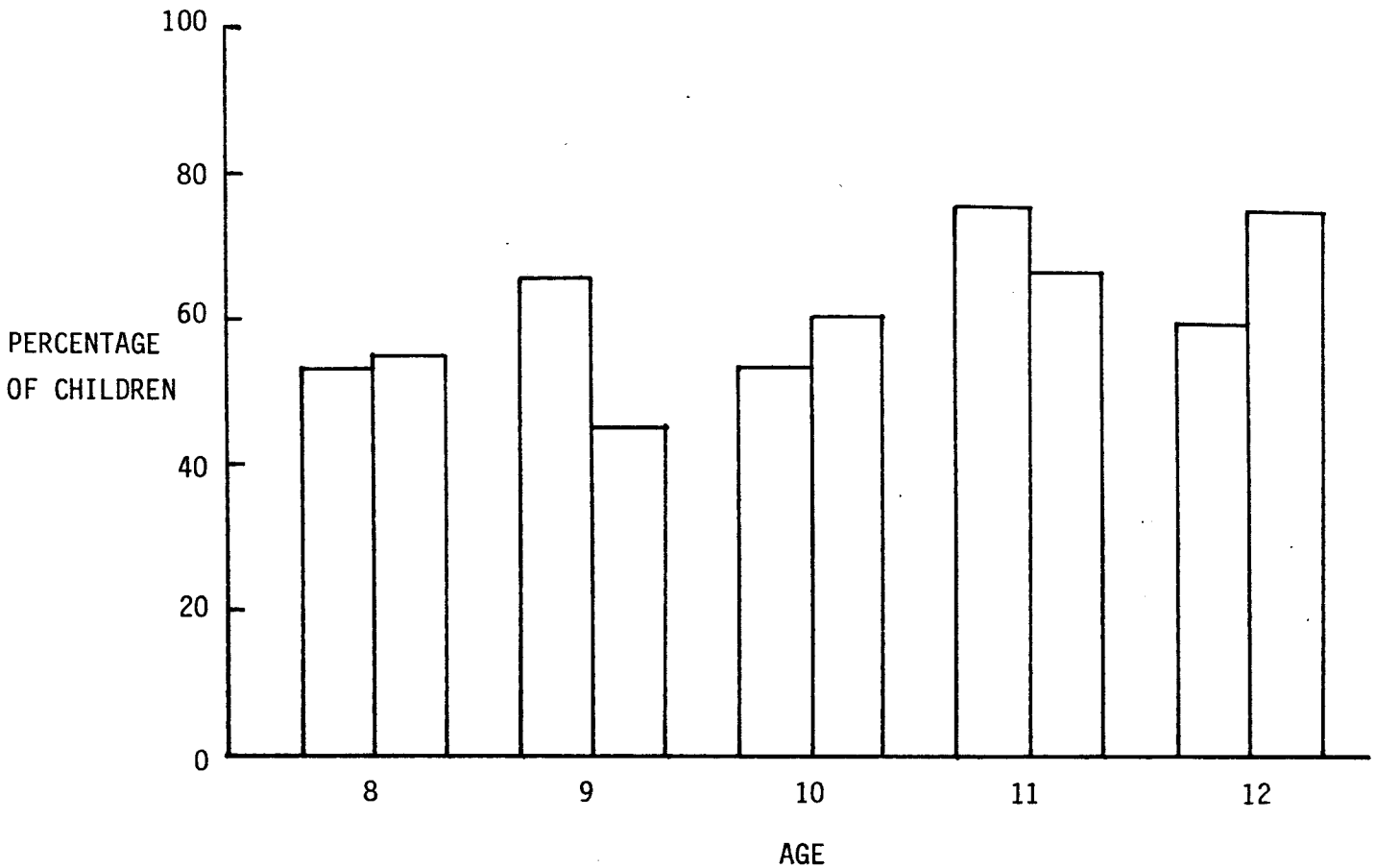
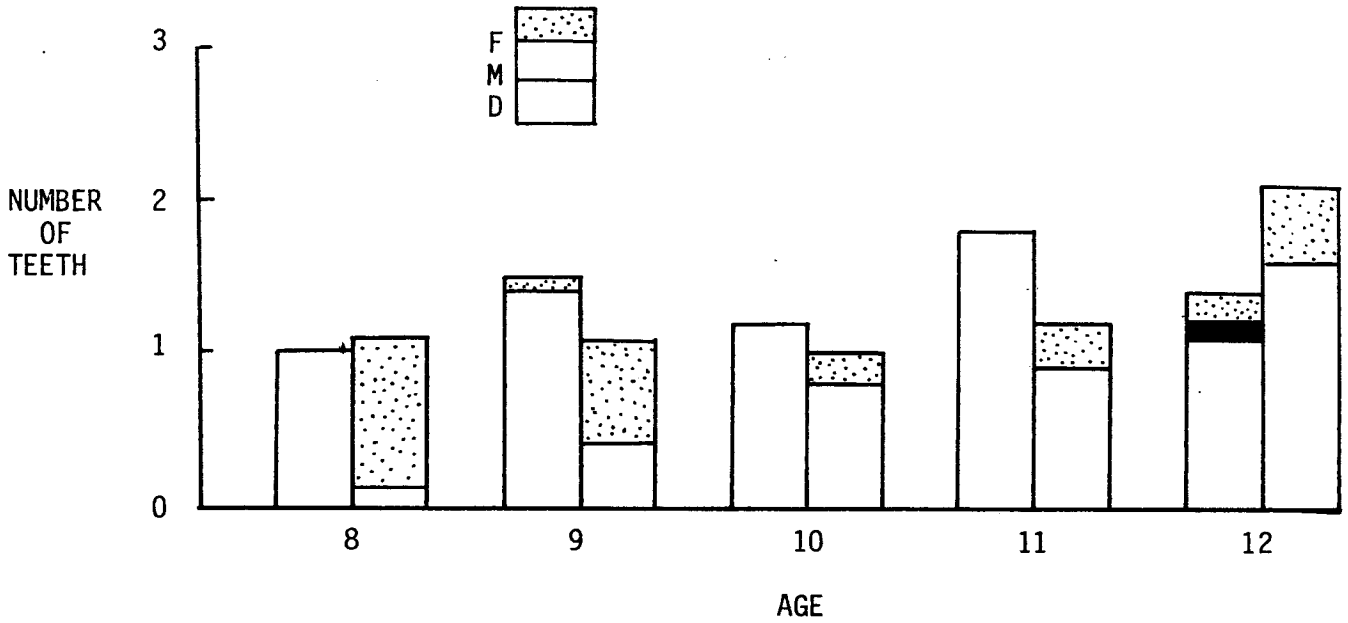


FIGURE 4

CARIES EXPERIENCE IN THE PERMANENT DENTITION OF THE FISHERMEN (LEFT COLUMN) AND THE NON-FISHERMEN



The treatment needs for caries are shown in Figure 5. Most of the needs relate to permanent teeth. Fishermen aged 8 needed 2 fillings compared with the age 8 non-fishermen who needed only half a filling. The fishermen and non-fishermen of other ages needed about 1 filling each. The numbers on the top of each column indicate the percentage of fillings required that are one-surface type, and as you can see, most of the filling required were of this type.

The tooth extraction requirements are shown in Figure 6. They range from 0 for the non-fishermen at age 8 to 0.5 for the fishermen at age 11. Fishermen and non-fishermen at age 12 needed the extraction of 0.4 teeth each.

DENTAL FLUOROSIS

The level of dental fluorosis found in Cheung Chau is shown in Tables 6 & 7. The results for fishermen and non-fishermen were similar. At the different ages, between 12 and 40 percent of the children had fluorosis scores of 3 which is unacceptably high. However, about 70 percent of all children had a fluorosis score of zero. The Community Index of fluorosis for the fishermen is 0.5 and that for the non-fishermen is 0.6.

PERIODONTAL DISEASE

By age 12, 100 percent of the fishermen had calculus and the percentage for the non-fishermen was 75. Desposits were more extensive in fishermen at all ages except 10.

Periodontal status according to the Community Periodontal Index of Treatment Needs, CPITN, are shown in Tables 8 & 9 and Figure 7. At age 8, fishermen had a mean of two sextants scored 0, which corresponds to healthy. Just less than a mean of one sextant was score 2, which corresponds to the presence of calculus. The remaining 3 sextants were scored 1, corresponding to bleeding on probing. These results are similar to the non-fishermen at age 8. With increasing age, the number of healthy sextants decreases and the number of sextants with calculus increases. Sextants showing bleeding on probing, slightly decrease with age. This is only an apparent decrease, because according to the CPITN scoring system, calculus takes precedence over bleeding on probing. In summary, the number of healthy sextants decreases from 2 to 1 from age 8 to 12, and sextants with calculus increase from 1 at age 8, to 2.5 at age 12.

At age 8, 50 percent of the fishermen had calculus and 40 percent of non-fishermen had calculus. See Tables 10 and 11 and Figure 8.

FIGURE 5

CARIES TREATMENT NEEDS FOR FISHERMEN (LEFT COLUMN) AND NON-FISHERMEN

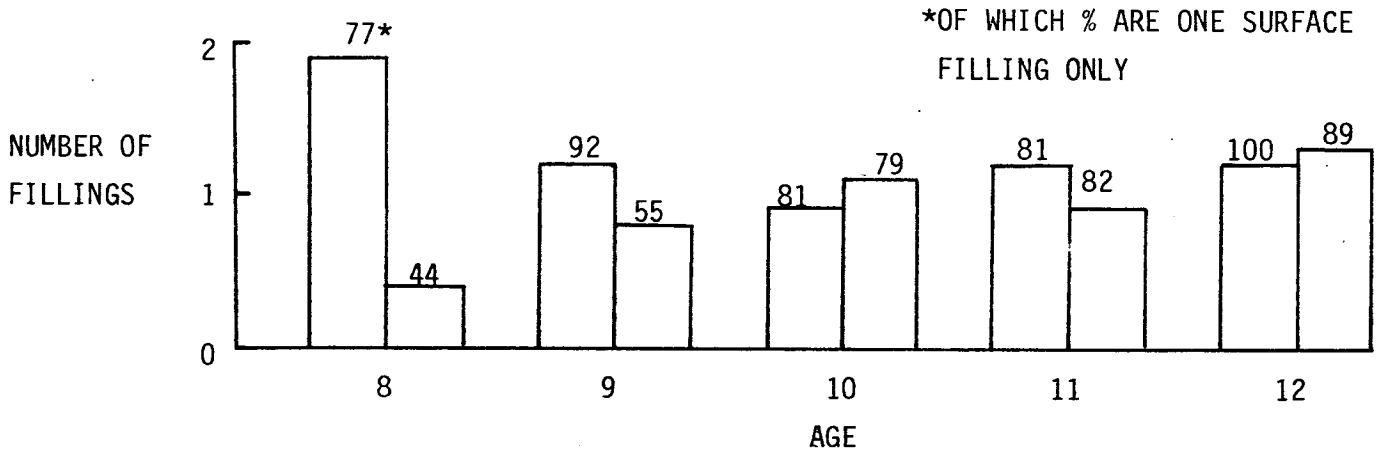


FIGURE 6

TOOTH EXTRACTION NEEDS OF FISHERMEN (LEFT COLUMN) AND NON-FISHERMEN

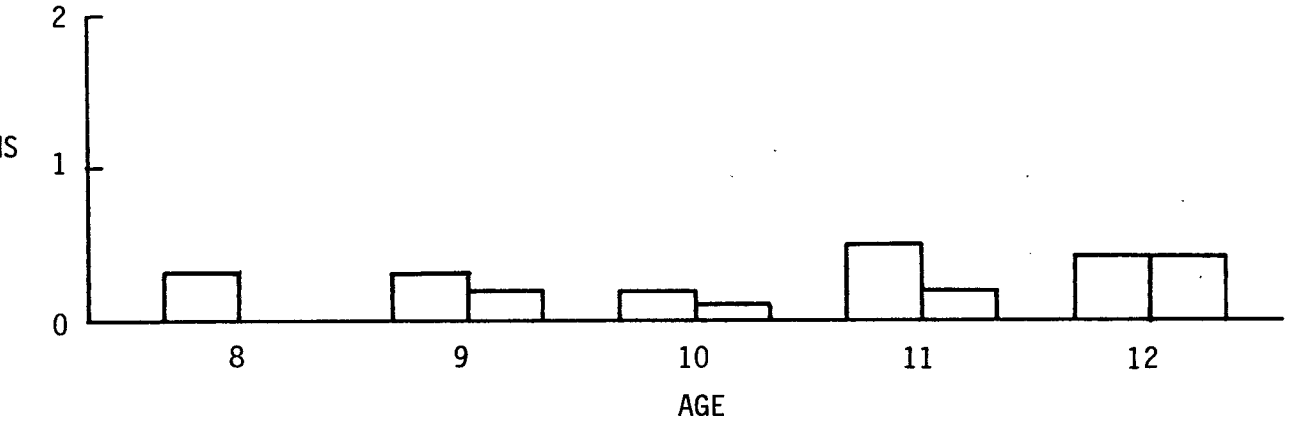


Table 6 - Dental fluorosis in fishermen

Age	Number of children examined	Fluorosis 0		Fluorosis 1		Fluorosis 3		Fluorosis 4		Community Index of Fluorosis
		N	%	N	%	N	%	N	%	
8	47	38	80.9	0	0	9	19.1	0	0	0.4
9	45	37	82.2	0	0	8	17.8	0	0	0.4
10	51	39	76.5	0	0	11	21.6	0	0	0.4
11	60	39	65.0	0	0	16	26.7	6	10.0	0.8
12	12	9	75.0	0	0	3	25.0	0	0	0.5
8-12	215	162	75.3	0	0	47	21.9	6	2.8	0.5

Table 7 - Dental fluorosis in non-fishermen

Age	Number of children examined	Fluroosis 0		Fluorosis 1		Fluorosis 3		Fluorosis 4		Community Index of Fluorosis
		N	%	N	%	N	%	N	%	
8	22	19	86.4	0	0	3	13.6	0	0	0.3
9	38	31	81.6	0	0	7	18.4	0	0	0.4
10	25	20	80.0	1	4	3	12.0	1	4	0.4
11	50	29	58.0	0	0	21	42.0	0	0	0.8
12	27	13	48.1	0	0	11	40.7	3	11.1	1.2
8-12	162	112	69.1	1	0.6	45	27.8	4	2.5	0.6

Table 8 - Periodontal status in fishermen - mean number of sextants involved per child according to the CPITN assessment

Age	Number of children examined	Mean number of sextants affected per child				
		CPITN 0	CPITN 1	CPITN 2	CPITN 3	CPITN 4
8	47	1.8	3.3	0.7	0.0	0.0
9	46	1.6	2.7	1.6	0.0	0.0
10	51	1.5	2.9	1.5	0.0	0.0
11	60	1.1	2.2	2.4	0.0	0.2
12	12	1.1	2.3	2.6	0.0	0.0
8-12		1.45	2.7	1.7	0.0	0.0

Table 9 - Periodontal status in non-fishermen - mean number of sextants involved per child according to the CPITN assessment

Age	Number of children examined	Mean number of sextants affected per child				
		CPITN 0	CPITN 1	CPITN 2	CPITN 3	CPITN 4
8	22	2.3	2.8	0.9	0.0	0.0
9	38	2.0	2.9	1.1	0.0	0.0
10	25	1.1	2.8	2.0	0.0	0.0
11	50	2.1	2.3	1.6	0.0	0.0
12	27	1.1	2.5	2.0	0.0	0.0
11-12		1.8	2.6	1.5	0.0	0.0

FIGURE 7

PERIODONTAL STATUS - MEAN NUMBER OF SEXTANTS WITH CPITN SCORES 0, 1, OR 2 FOR FISHERMEN (LEFT COLUMN) AND NON-FISHERMEN

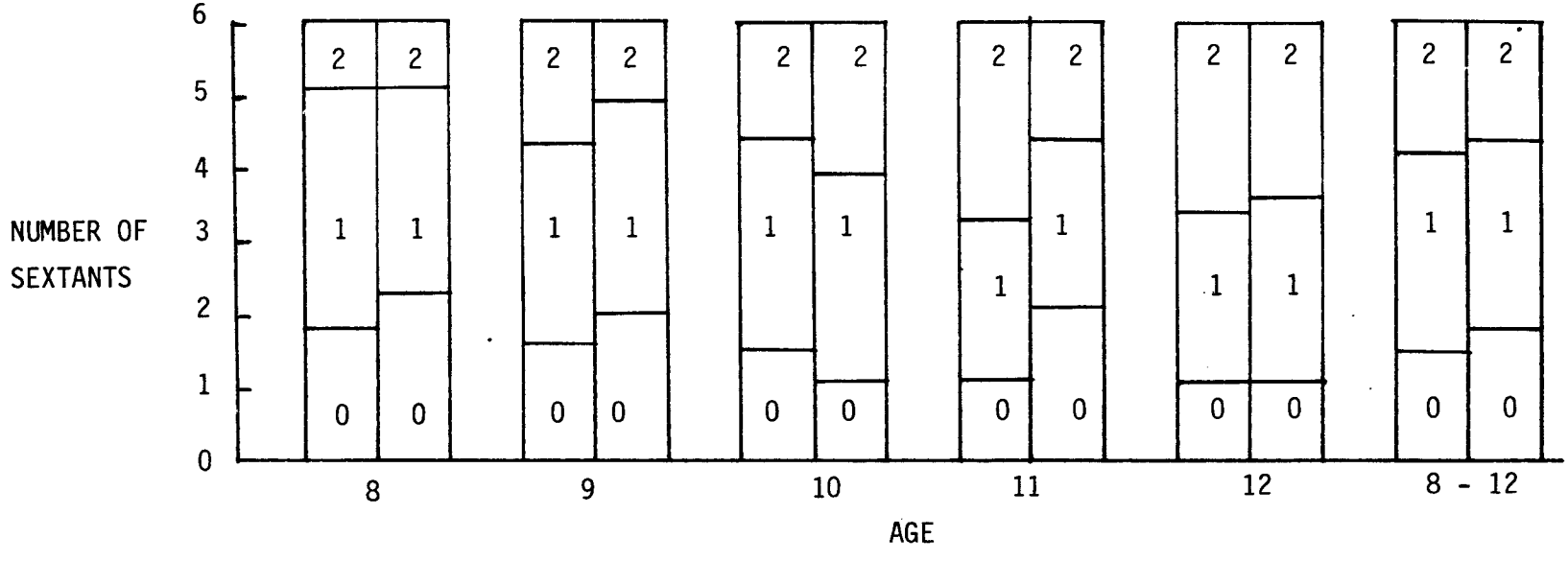


Table 10 - The severity of periodontal disease in fishermen - The number and percentage of children according to CPITN scores

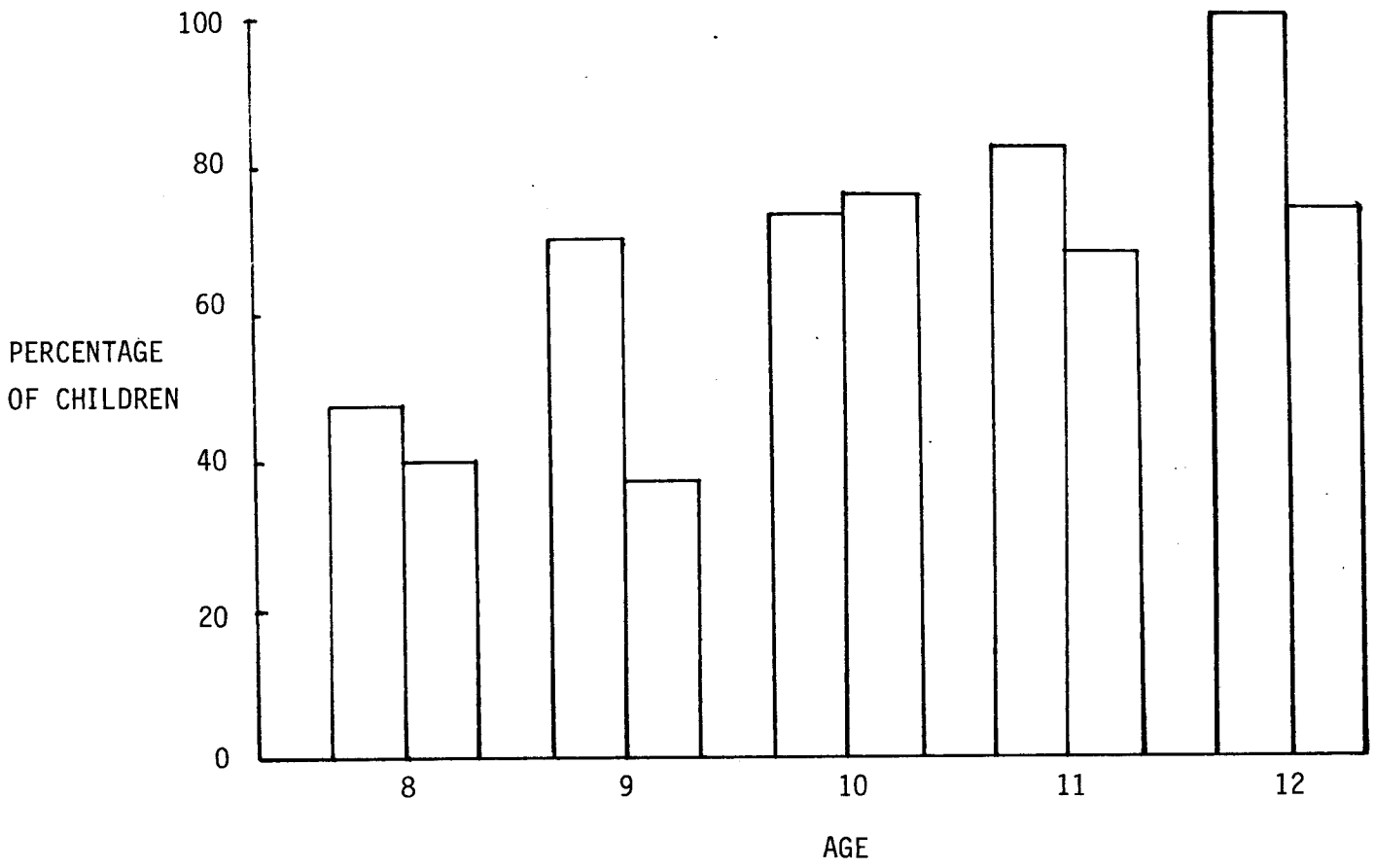
Age	Number of children examined	Number and percentage of children by CPITN score									
		CPITN 0		CPITN 1		CPITN 2		CPITN 3		CPITN 4	
		N	%	N	%	N	%	N	%	N	%
8	47	38	80.9	47	100.0	22	46.8	0	0	0	0
9	46	35	76.1	45	79.8	32	69.6	0	0	0	0
10	51	42	82.4	48	94.1	37	72.5	0	0	0	0
11	60	41	68.3	54	90.0	50	83.3	0	0	1	1.67
12	12	8	66.7	11	91.7	12	100	0	0	0	0

Table 11 - The severity of periodontal disease in non-fishermen - The number and percentage of children according to CPITN scores

Age	Number of children examined	Number and percentage of children by CPITN score									
		CPITN 0		CPITN 1		CPITN 2		CPITN 3		CPITN 4	
		N	%	N	%	N	%	N	%	N	%
8	22	18	81.8	21	95.5	11	50.0	0	0	0	0
9	38	30	78.9	35	92.1	18	47.4	0	0	0	0
10	25	14	56.0	25	100	19	75.0	0	0	0	0
11	50	42	84.0	46	92.0	34	68.0	2	4.0	0	0
12	27	16	59.3	24	88.9	19	70.4	1	3.7	1	3.7

FIGURE 8

PERCENTAGE OF FISHERMEN (LEFT COLUMN) AND NON-FISHERMEN NEEDING CALCULUS REMOVAL



The periodontal treatment needs for the children are shown in Tables 12 & 13 and Figure 9. According to the CPITN system, very few children require no treatment. Practically all of them needed oral hygiene instruction. In addition, 50 percent of the children aged 8 needed scaling. The scaling requirements increase with age - all the fishermen aged 12 and most of the non-fishermen aged 12 needed scaling. Overall, scaling requirements for the fishermen were more extensive.

COMPARISON BETWEEN THE ORAL HEALTH STATUS OF CHEUNG CHAU AND HONG KONG CHILDREN

A comparison of the caries experience in the primary teeth of children in Cheung Chau and Hong Kong are shown in Table I. For all ages the dmf values for the non-fishermen and the Hong Kong children are similar, whereas the values for the fishermen are higher at ages 8 and 9 compared with both non-fishermen and Hong Kong children.

Similarly, for the permanent dentition, (Table II), the DMF values for the non-fishermen and the Hong Kong children are comparable. The fishermen aged 9, 10, and 11 had higher DMF values than the other 2 groups.

A comparison between the Cheung Chau children and Hong Kong children, with regard to periodontal status, shows that the levels of calculus among the fishermen ad the non-fishermen, were twice the level found in the Hong Kong children in each age group (Table III).

TASK ANALYSIS

We come now to task analysis. Beginning with periodontal treatment (Table IV), 251 children needed calculus removal. 1 hygienist working 6 hours a day would take 251 hours, or 41.8 days, or 8.4 weeks to treat these children. If each child required 2 half-hour sessions. Or it would take 12.6 weeks for 3 half-hour sessions per child. Similarly, it would take about 4 weeks for 1 half-hour session.

Turning now to the task analysis for caries treatment. There are 531 treatment items, including both the fillings and extractions needed for all of the children that were surveyed (Table V). One dental therapist working 6 hours per day would take 6 weeks to complete the treatment if she completed 3 items of treatment per hour. It would take 9 weeks if she completed 2 items of treatment per hour.

This completes the clinical findings. We more on now to present the results related to the interviews with the children.

Table 12 - Periodontal treatment needs of fishermen

Age	Number of children examined	No treatment		OHI only		OHI plus Scaling		Complete treatment	
		N	%	N	%	N	%	N	%
8	47	0	0	25	53.2	22	46.8	0	0
9	46	0	0	14	30.4	32	69.6	0	0
10	51	0	0	14	27.5	37	72.5	0	0
11	60	1	1.7	9	15.0	49	81.6	1	1.7
12	12	0	0	0	0	12	100.0	0	0
8-12	216	1	0.5	62	28.7	152	70.4	1	0.5

Table 13 - Periodontal treatment needs of non-fishermen

Age	Number of children examined	No treatment		OHI only		OHI plus Scaling		Complete treatment	
		N	%	N	%	N	%	N	%
8	22	1	4.5	10	45.5	11	50.0	0	0
9	38	3	7.9	17	44.7	15	47.4	0	0
10	25	0	0	6	24.0	19	76.0	0	0
11	50	0	0	16	32.0	34	68.0	0	0
12	27	0	0	6	22.2	20	74.1	1	3.7
8-12	162	4	2.4	55	40.0	99	61.1	1	0.6

FIGURE 9

PERIODONTAL TREATMENT NEEDS FOR FISHERMEN (LEFT COLUMN) AND NON-FISHERMEN - PERCENTAGE OF CHILDREN REQUIRING TREATMENT

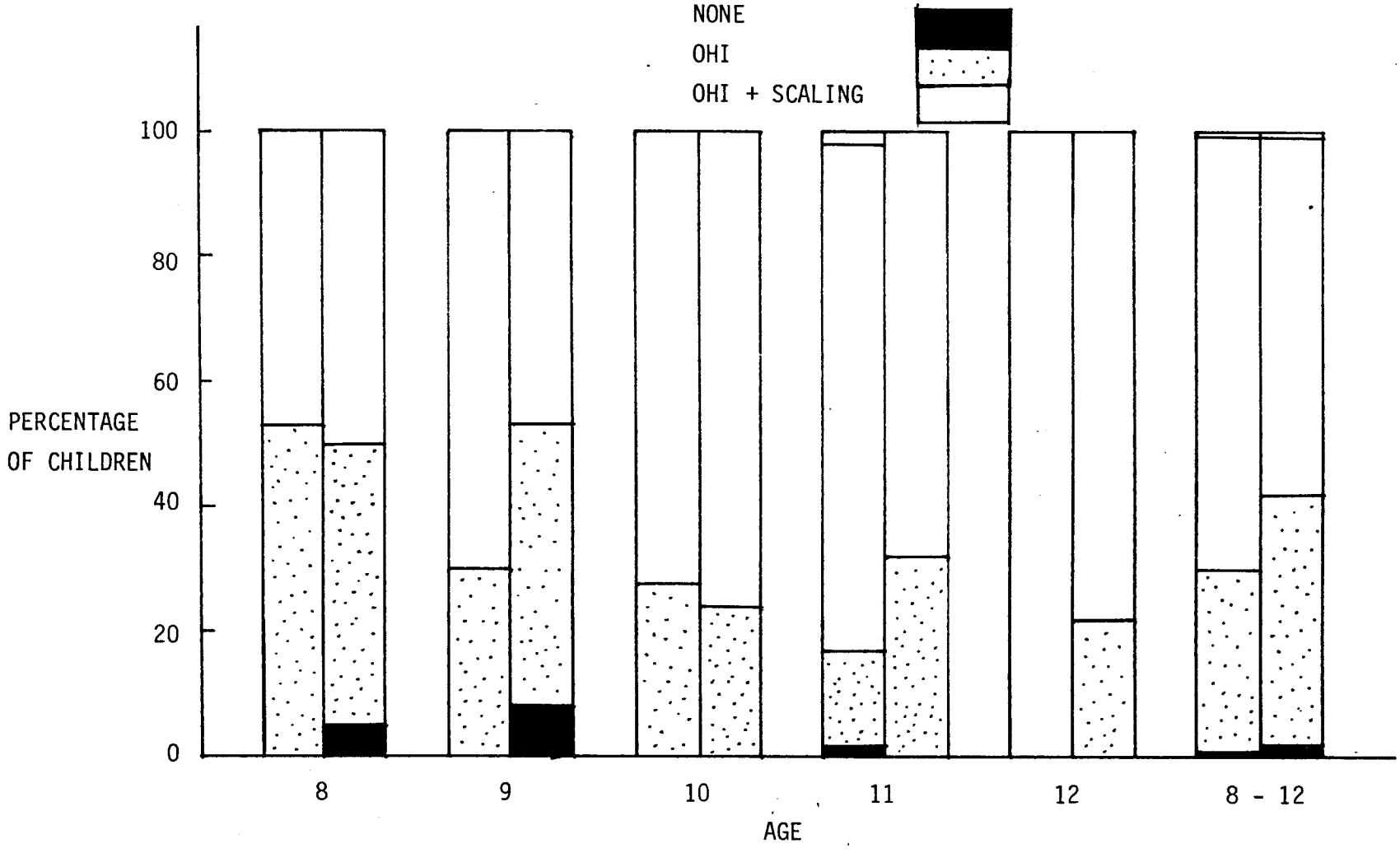


Table I. Caries experience in the primary dentition in Cheung Chau and Hong Kong

Age	Mean dmf value		
	Cheung Chau		Hong Kong
	Fishermen	Non-fishermen	
8	5.6	3.8	3.8
9	4.1	2.6	2.8
10	1.9	2.4	1.7
11	0.8	0.8	0.7

Table II. Caries experience in the permanent dentition in Cheung Chau and Hong Kong

Age	Mean DMF value		
	Cheung Chau		Hong Kong
	Fishermen	Non-fishermen	
8	1.0	1.1	0.8
9	1.5	1.1	1.1
10	1.2	1.0	1.2
11	1.8	1.2	1.5

Table III. Periodontal status in Cheung Chau and Hong Kong

Age	Percentage of children with calculus		
	Cheung Chau		Hong Kong
	Fishermen	Non-fishermen	
8	46.8	50.0	22.4
9	69.6	47.4	28.8
10	72.5	76.0	35.6
11	81.6	68.0	41.9

Table IV. Task analysis for periodontal treatment

One hygienist working 6 hours per day			
251 children need calculus removal	Hours	Days	Weeks
2 half hour sessions per child	251	41.8	8.4
3 half hour sessions per child	376.5	62.8	12.6

Table V. Task analysis for caries treatment

531 Treatment items (fillings + extractions)	Hours	Days	Weeks
3 items per hour	177	29.5	5.9
2 items per hour	265.5	44.3	8.9

FINDINGS FROM QUESTIONNAIRES - CHILDREN

The questionnaire was administered to age 9 children and age 12 children only, and the results from the fishermen and non-fishermen have been combined to simplify the presentation.

A IDENTIFICATION

The distribution of the sample interviewed is shown in Table 14.

Table 14 - Distribution of sample

	Number of children	
	Age 9	Age 12
Fishermen	21	10
Non-fishermen	11	9
Total	32	17

Attendence at the School Dental Care Service is shown in Table 16.

Table 16 - Enrolment in School Dental Care Service

	Percentage of children enrolled	
	Age 9	Age 12
Yes	40.6	0
No	59.4	100

ORAL HEALTH KNOWLEDGE

The following tables present the results relating to oral health knowledge.

Table 17 - Responses to question - Have you had toothache before

	Percentage of children	
	Age 9	Age 12
Yes	65.6	82.4
No	34.4	17.6

Table 18A - Responses to question - which of the following are related to caries.

	Percentage of children	
	Age 9	Age 12
Diet	90.6	100.0
Toothbrushing	40.6	41.2
Bacteria/norms	71.9	58.8
Other	6.3	5.9

Table 18B - Response to question - who taught you this

	Percentage of children	
	Age 9	Age 12
Family	59.4	41.2
Teachers	56.3	41.2
Mass media	9.4	11.8
Peer group	6.0	5.9
Professional personnel	3.1	0.0

Table 19 - Response to question - Have you had gum bleeding before

	Percentage of children	
	Age 9	Age 12
Yes	65.6	70.6
No	34.4	29.4

Table 20A - Response to question - Is the following association with gum bleeding.

	Percentage of children	
	Age 9	Age 12
Toothbrushing	46.9	70.6
Calculus/plaque	53.1	47.1
Diet	43.8	17.6
Bacteria/worms	65.6	41.2
Other	6.3	5.9

Table 21B - Response to question - who taught you this

	Percentage of children	
	Age 9	Age 12
Family	59.4	29.4
Teachers	21.9	29.4
Mass media	9.4	11.8
Peer group	0.0	5.9
Professional personnel	0.0	0.0

Table 22 - Response to question - Have you ever heard of term PERIODONTAL DISEASE

	Percentage of children	
	Age 9	Age 12
Yes	81.3	100
No	18.8	0

C. ORAL HEALTH AWARENESS AND EXPECTATION.

The following tables relate to awareness of personal health and disease status.

Table 23 - Response to question - Do you have any carious teeth now

	Percentage of children	
	Age 9	Age 12
Yes	56.3	47.1
No	43.8	52.9

Table 24 - Response to question - Have you had bleeding gums recently (within last 2 weeks)

	Percentage of children	
	Age 9	Age 12
Yes	25.0	35.3
No	75.0	64.7

Table 25 - Response to question - How satisfied are you with the condition of your teeth

	Percentage of children	
	Age 9	Age 12
Satisfied		23.5
Neutral		17.6
Not satisfied		58.8

Table 26 - Response to question - How satisfied are you with the cndition of your gums

	Percentage of children	
	Age 9	Age 12
Satisfied	71.9	47.1
Neutral	6.3	17.6
Not-satisfied	21.9	35.3

D. DENTAL HEALTH PRACTICES

Data relating to oral health practices is presented in Table 27.

Table - Response to question - What oral hygiene habit do you ractice at least once a day

	Percentage of children	
	Age 9	Age 12
Use a toothbrush	78.1	100.0
Use toothpaste	75.0	100.0
Use a fluoridated toothpaste	12.5	47.1
Use dental floss	0	0
Usse toothpicks	15.6	58.8

E. PROFESSIONAL SERVICES

The following tables present results relating to experience with professional dental services.

Table 28A - Response to question - Have you received any dental treatment before

	Percentage of children	
	Age 9	Age 12
Yes	59.4	41.2
No	43.8	58.8

Table 28B - From whom

	Percentage of children	
	Age 9	Age 12
Dentist	46.9	41.2
Therapist	9.4	0
Other	3.1	0

Table 28C - Where

	Percentage of children	
	Age 9	Age 12
Cheung Chau	31.3	23.5
HK,KL,NT (except other islands)	15.6	17.6
Other islands	12.5	0

Table 29 - Response to question - when was the last visit

	Percentage of children	
	Age 9	Age 12
Within 3 years	37.5	23.5
More than 3 years ago	15.6	17.6
Don't know	3.1	0

Table 30 - Response to question - What were the reasons for the last visit.

	Percentage of children	
	Age 9	Age 12
Preventive service	3.1	0
Treatment of teeth	9.4	17.6
Treatment of gums	0	0
Extraction of one or more teeth	43.8	29.4

Table 31 - Response to question - For what reason have you never attended a dentist

	Percentage of children	
	Age 9	Age 12
No dental problem	15.6	5.9
Dental problem resolved itself	6.3	11.8
Dental problem but afraid of dentist	9.4	17.6
Dental poblem but no services available for children	9.4	17.6

FINDINGS FROM THE QUESTIONNAIRES - TEACHERS

A. PERSONAL INFORMATION

Eleven teachers were interviewed and their ages ranged from 23 to 60 years. Their places of residence are shown in Table 32.

Tabl 32 - Place of residence

	Number of teachers
Cheung Chau for more than 10 years	7
Cheung Chau for more than 2 years	3
Hong Kong Island	1

B ORAL HEALTH KNOWLEDGE AND ATTITUDES TOWARDS DENTAL DISEASES

The following tables show the frequency of responses of the teachers to questions relating to knowledge of and attitudes towards dental diseases.

Table 33 - Expectations related to susceptablity to dental diseases within the next 5 years

	Yes	No
Toothache	5	6
Bleeding gums	3	8

Table 34A - Causes of toothache

	Frequency
Caries	4
Poor diet	6
Lack of tooth brushing	6
Other causes included: bacteria; The Chinese idea of hotness in the body; and congenital	

Table 34B - Prevention of toothache

	Frequency
Tooth brushing	9
Check-up	5
Diet control	4
Other methods included: scaling; fluoride; rinsing with water; enough sleep; and Chinese herbal tea	

Table 35A - Causes of bleeding gums

	Frequency
Don't know	3
Other causes included: swollen gums; brushing too hard; caries; lack of vitamin C; calculus; bacteria; food debris; and abscess on gums.	

Table 35B - Prevention of bleeding gums

	Frequency
Eating more fruit (vitamin C)	4
Regular scaling	2
Effective brushing	2
No preventive method is effective	2
Other methods included: rinsing and caries prevention	

Table 36 - value of professional help in preventing and treating toothache and bleeding gums

	Useful	Not useful
Toothache	10	1
Bleeding gums	10	1

Table 37 - Relative value of false teeth and natural teeth

	Yes	No	Don't know
False teeth are better than natural teeth	1	9	1

Table 38 - Reasons for tooth loss

	Frequency
Natural process associated with aging	4
Poor dental care	4
Combination of aging and poor dental care	1
Don't know	2

C. ORAL HYGIENE PRACTICES

The following tables relate to responses concerning the oral health habits of the teachers.

Table 39 - Oral health habits

	Frequency of practice		
Variable		Once a day	twice a day
Brushing with toothpaste	0	3	8
Toothpick	7	0	0
Rinsing	0	1	0
Flossing	0	2	0

Table 40 - Reasons for performing oral health habit

	Frequency
Habit	7
Improve oral health	4
Remove debris	3
prevent bad breath	1

Table 41 - Dietary habits

	Frequency
The main meals plus afternoon tea	7
Affinity for sweet food	3

D. ORAL HEALTH CONDITIONS AND TREATMENT DEMAND

The following tables relate to response from the teachers concerning their satisfaction with their oral status,and their demands for improvement.

Table 42A - Satisfaction with teeth and gums

	Frequency
Satisfied	5
Not satisfied	5
Neutral	1

Table 42B - Method of improving oral health conditions

	Frequency
Regular check-up ad professional treatment	3
More information on oral health	1
No assistance can help	1

Table 43A - Satisfaction with the condition of students teeth and gums

	Frequency
Satisfied	2
Not satisfied	8
Neutral	1

Table 43B - Method of improving ad health condition of students

	Frequency
Family education	5
Increase social awareness	3
Supply information through TV	3
Increase emphasis in curriculum	1
Improve atitudes of teachers	1

E. OPINIONS ON PROFESSIONAL SERVICES

Table 44A and 44B relate to responses concerning dental visits.

Table 44A - Frequency of visits to dentist

	Frequency
Within last 6 months	6
6 months to 1 year	1
1-2 years	1
more thean 2 years	3

Table 44B - Reason for last visit to dentist

	Frequency
Toothache - treatment sought	4
Wisdom tooth - treatment sought	3
Denture adjustment	1
Halitosis - treatment sought	1

Tables 45A, 45B, and 45C relate to responses of teachers concerning future visits to a dentist.

Table 45A - Desire for more frequent visits

	Frequency
Yes	1
No	10

Table 45B - Reason for future visits to dentist

	Frequency
Treatment	8
Check-up	3

Table 45C - Reason fo not desiring future visit to dentist

	Frequency
Afraid of dentist	2
Not necessary	2
Too expensive	1
Inconvenient	1

All teachers were in favour of the School Dental Care Service ad would let their children join. Their reasons fr this are set out in Table 46.

Table 46 - Reasons for appreciating the School Dental Care Service

	Frequency
Regular check-up and treatment is good	6
Can improve awareness and knowledge of students	4
Inexpensive	2

Table 47 relates to the responses of the teachers concerning awareness of the acceptability of the School Dental Care Service to the students.

Table 47 - Observations by teachers of students reactions to the School Dental Care Service

	Frequency
Children are frightened	2
Children like to travel to Hong Kong (atmosphere of picnic)	1
Children like to improve their dental knowledge	1

The following tables relate to responses of the teachers to questions concerning the dental services on Cheung Chau.

Table 48A - Adequacy of services on Cheung Chau

	Frequency
Enough	0
Not enough	9
Don't know	2

Table 48B - Need for more services

	Frequency
More general practitioners	5
Expand government service	2
Introduce Dental Therapists	1
provide health educaton to parents/children	1

Table 48C - Reasons for low demand for services in Cheung Chau

	Frequency
Too expensive	3
Inconvenient - time consuming	3
Lack of awareness	2
Afraid dentist/dental treatment	1
Dental problems not prevalent in Cheung Chau	1

Table 48D - Source of dental pain relief in Cheung Chau

	Frequency
Unregistered dentist in Cheung Chau	8
Dentist in Hong Kong	2
Self treatment	2
Don't know	1

Table 48E - Methods to promote oral health care in Cheung Chau

	Frequency
Provide health education to public	5
Put more emphasis on the children ratherthan the adults in all measures	3
Provide inexpensive dental services	1
Set up a denal counselling unit	1
Provide clinic for check-ups	1
Improve attitudes of parents	1

ORAL HEALTH PROGRAMME FOR CHEUNG CHAU

From the analysis of the results obtained from the survey, the needs of the population for dental treatment are relatively low when compared with western industrialised countries. The unmet treatment need was high - over 90 percent of the decayed permanent teeth were untreated. There was an average of 1.1 teeth needing restorative treatment per child and 68 percent of the children surveyed needed professinal removal of calculus.

The oral health plan we propose to meet the need of the child population has the following objectives:

1. By 1990, the DMF of 12 year old children should not exceed the present level of 1.4

2. By 1990, the mean number of sextants with CIPTN score of 2 or above 12 year old should be below 1 (present level is 2.5).

In order to achieve this the ocmmunity programmes suggested are as follows:

Firstly, a Dental Health Week should be organised on a regular basis - such as every year or on alternative years. The aim of this is to increase awareness of dental health and to motivate the general public to make full utilisation of the School Dental Care Service. The planning of the dental Health Week will involve co-operation of teachers, parents, and students. The activities will include preparation of dental health plays, experiments, panel discussions, quiz programmes, and an emphasis on peer group teaching.

The second part of the programme involves the establishment in schools of a daily oral hygiene session. It should not be a class activity directed by a teacher. instead it should be a group activity, designed to encourage personal responsibility through peer interaction.

EVALUATION AND FOLLOW-UP

The progress of the oral health programme should be monitored by surveys using the same diagnostic criteria as the pesent study.

DISCUSSION

Referring to the dental caries experience of the students in Cheung Chau, there is not any marked differences between the fishermen and non-fishermen. A higher percentage of non-fishermen aged 8-10 years have filled teeth which is due to the higher number of non-fishermen attending the School Dental Care Service. Only 40 percent of the fishermen had joined the service but none of them had any fillings. Probably this is because they wre not able to go for treatment to Hong Kong due to fishing obligations. As the caries experience difference between the groups is not marked, the diet and socio-economic factors do not seem to be important variables affecting dental health in Cheung Chau children.

More fishermen need treatment and most of the needs relate to the permanent teeth. This again reflects the inadequate treatmen received by the fishermen. Most of the caries was in the fissured surfaces which reflects the effect of water fluridation - occlusal surfaces are pretected less. Fissure sealants should be introduced to prevent the caries in these surfaces.

Dental fluorosis scores are unacceptably high in both the fishermen and non-fishermen. Further detailed studies should be caried out to investigate the relationship between the specific factors responsible for fluorosis.

ACKNOWLEDGEMENTS

Finally, we would like to say that our project was a valuable learning experience for us, and the survey was a special social occasion for our group. We wish to acknowledge our supervisor Dr Lind and also the assistant given by Dr. Evans and Dr. Corbet. We thank the dental surgery assistants who helped us, and also Dr Chan for his help with sampling and the statistician analysis of the data. Finally we thank the teachers and children at Cheung Chau and the secretarial staff of the Department of Periodontology and Public Health.

REFERENCES

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Oral Health Surveys - Basic Methods. Second edition. World Health Organization, Geneva, 1977.

APPENDICES

Modifications to the WHO criteria were as follows:

Treatment needs for caries When the restorative treatment for a decayed primary or permanent tooth required a 4 or more surfaces restoration, extraction was indicated.

Dental fluorosis Code 1 (questionable) and code 2 (very mild) were combined and recorded as Code 1.

甲)個人資料

姓名：_____

編號：_____

性別：_____

年歲：_____

居住地點：

□長洲

□其他離島

□港島、九龍、新界

家庭：

□漁民

□非漁民

你有沒有參加香港政府辦的學童牙科保健計劃？

□有

□沒有

乙)口腔常識

1)你試過牙痛未呀？

□有

□沒有

2)你估吓以下所說的有那些是與蛀牙有關？

□食物(糖)

□刷牙

□細菌/蟲

其他_____

3)誰教你的？

□家人
□教師
□傳播媒界
□朋友/同學
□專業人仕
□其他_____

4)你流過牙血未呢？(牙肉流血)

□有
□沒有

5)以下說的有那些與流牙血有關？

□刷牙
□牙石/牙垢
□飲食習慣
□細菌/蟲
□其他_____

6)誰教你的？

□家人
□教師
□傳播媒界
□朋友/同學
□專業人仕
□其他_____

7)你聽過牙週病這個名詞未？

□聽過
□未聽過

丙)口腔健康的警覺性及期望(態度)

8)你現在有沒有蛀牙？

□有

□沒有

9)最近這兩個星期內你有沒有流過牙血？

□有

□沒有

10)你對自己的牙齒狀況滿意否？

□滿意

□無意見(中立)，對自己的牙齒無特別留意

□不滿意

11)你對自己的牙肉情況滿意否？

□滿意

□無意見

□不滿意

丁)口腔健康的習慣

☑代表那種方法每天最少用一次

□用牙刷刷牙

□用牙膏刷牙

□用有氟的牙膏刷牙

□用牙線

□用牙纖

戊)專業性服務

13)你試過接受牙科治療未？

□有

□沒有

如果有，

14)誰？

□牙醫

□牙科治療員

□其他_____

15)在那裏？

□長洲

□港島、九龍、新界(不計離島)

□其他_____

16)最後求診的時間？

□這三年內

□三年之前

17)你最後求診的原因是？

□預防性的服務

□治療(眞的)牙齒

□治療牙肉

□脫牙

如果無，

18)原因是？

□牙齒無問題(無痛/流牙血)

□牙齒有問題但無診治，因爲：

□自己痊癒

□怕睇牙醫

□無人理

J3

QUESTIONNAIRE FOR CHEUNG CHAU 9-12 YEAR OLD SCHOOL CHILDREN ORAL HEALTH SURVEY 1984

(TIME LIMIT OF THE QUESTIONNAIRE IS 5 MINUTES FOR EACH CHILD)
QUESTIONS ARE DIVIDED INTO FIVE GROUPS.

A. IDENTIFICATION

NAME: _____
(Surname)

CODE NUMBER: _____

SEX M F

AGE _____

RESIDENCE
Cheung Chau
Other islands including Lantau
HK, KLN & NT excluding the islands

FAMILY
Fisherman
Non-fisherman

HAVE YOU JOINED THE GOVERNMENT SCHOOL DENTAL CARE SERVICE

Yes No

B. ORAL HEALTH KNOWLEDGE

1. HAVE YOU HAD TOOTHACHE BEFORE?

YES
NO

2. DO YOU KNOW WHAT THE CAUSE OF CARIES IS?

i. DON'T KNOW
ii. KNOW: DIET e.g SUGAR
LACK OF CLEANING
BACTERIA/WORMS
OTHERS (INCLUDING BOTH CORRECT & INCORRECT ANSWERS)

_____

_____

3. HOW DO YOU KNOW?

i FAMILY
ii SCHOOL TEACHERS
iii BROADCASTING MEDIUM (TV, EXHIBITION, NEWSPAPER etc)
iv FRIENDS
v PROFESSIONAL EDUCATION (dentist, therapist and others)
vi OTHERS: _____

_____

4. HAVE YOU HAD GUM BLEEDING BEFORE?

YES NO

5. WHAT DOES PERIODONTAL DISEASE LOOK LIKE

i. DON'T KNOW

ii. KNOW: LOOSE TEETH
RED & SWOLLEN GUM
PLAQUE & CALCULUS
BLEEDING GUM
OTHERS INCLUDING BOTH CORRECT & INCORRECT ANSWERS: _____

_____

6. DO YOU KNOW WHAT IS THE CAUSE OF PERIODONTAL DISEASE?

i. DON'T KNOW
ii. KNOW: LACK OF CLEANING
CALCULUS/PLAQUE
DIET
BACTERIA/WORMS
OTHERS

7. HOW DO YOU KNOW?

FAMILY
SCHOOL
BOARDCATING MEDIUM
FRIENDS
PROFESSIONAL EDUCATION
OTHERS: _____

_____

C ORAL HEALTH AWARENESS & EXPECTATION

8. DO YOU HAVE ANY CARIOUS TEETH NOW
   YES NO

9. HAVE YOU HAVE ANY BLEEDING GUMS RECENTLY (WITHIN 2 WEEKS)
   YES NO

10. HOW WELL SATISFIED ARE YOU WITH THE CONDITIONS OF YOUR TEETH?

    a. SATISFIED
    b. NEUTRAL
    c. DISSATISFIED

11. HOW WELL SATISFIED ARE YOU WITH THE CONDITIONS OF YOUR GUM?

    a. SATISFIED
    b. NEUTRAL
    c. DISSATISFIED

D ORAL HEALTH PRACTICES

The following group of questions relate to the personal oral health habits of the child. We would like to know which, if any of the following things the child did "yesterday".

Place a tick in the "yes" box if the child used the method at least ONCE during the day.

YES

12. a. brushing with a toothbrush
    b. brushing with toothpaste
    c. brushing with a fluoride toothpaste
    d. use dental floss
    e. use toothpick

E PROFESSIONAL SERVICE

13. HAVE YOU RECEIVED ANY DENTAL TREATMENT BEFORE?

YES NO

14. WHO FROM
i. DENTIST
ii. THERAPIST
iii. OTHERS

15. WHERE
i. CHEUNG CHAU
ii. HK, KLN & NT excluding island
iii. OTHER ISLANDS

16. WHEN WAS THE LAST VISIT

i. less than 3 years ago
ii. more than 3 years ago

17. WHAT WERE THE REASONS FOR YOUR LAST VISIT TO THE DENTIST OR THERAPIST

i. PREVENTIVE SERVICE (e.g. check-up, X-rays, cleaning etc)

ii. TREATMENT OF NATURAL TEETH (e.g. filling, RCT, toothache)

iii. TREATMENT OF GUM (e.g. soregum, loose teeth etc)

iv. EXTRACTING A TOOTH OR SEVERAL TEETH (e.g. abscees, impaction, swelling, supernumerary retained root etc)

18. REASONS FOR NOT ATTENDING DENTIST

i. NO PROBLEM

ii. PROBLEM BUT:

NO TREATMENT (i.e. relief by itself)
OTHER TREATMENT (specify)

INTERVIEW WITH TEACHERS

A. PERSONAL INFORMATION

1. Sex: _____

2. Age: _____

3. Living: in Cheung Chau for _____ years
   : out of Cheung Chau. Which area _____

4. Teaching in which class: _____

5. Main subjects taught: _____

6. No. of years in this school: _____ years

B ORAL HEALTH KNOWLEDGE AND ATTITUDES TOWARDS DENTAL DISEASES

1. Do you expect to have bleeding gums and toothache in the coming 5 years?

   a. toothache: Yes - 2b No - 2c
   b. bleeding gums: Yes - 3b No - 3c

2. toothache

   a. What do you think are the causes of toothache?
   b. What do you think you can do to prevent it?
   c. Have you done anything specially to prevent it?

Causes:
e.g. - sweet food
- frequency of intake

Prevention:
e.g. - dietary habits
- oral hygiene
- use of fluoride - how
- regular check-ups

3. Bleeding gums:

   a. What do you think are the causes of bleeding gums?
   b. What do you think you can do to prevent it?
   c. Have you done anything specially to prevent it?

Causes:
e.g. - accumulation of plaque

Prevention:
e.g. - oral hygiene
- regular check-up

4. Do you think professional help in useful in preventing and treating these diseases?

a. toothache: Yes No
b. bleeding gums: Yes No
c. How can they help?
- Attitudes on concept of "prevention"
- Attitudes on usage of professional help

5. In your opinion, are false teeth better than natural teeth?

- Importance of preventing tooth loss
- is loss of teeth accepted as a natural process of aging or as consequence to diseases

C ORAL HELATH PRACTICES

1. What do you do as an oral health habit

- method(s):
- frequency:

2. What is the reason for doing it?

- habit
- improve oral health

3. What is your dietary habit like?

- frequency of eating
- sweet food

D ORAL HEALTH CONDITION AND DEMAND FOR IMPROVEMENT

1 a. How well satisfied are you with the condition of your teeth and gums?

- satisfactory
- not satisfactory

b. What assistance do you think is needed to improve the condition?

- professional help
- more information

2 a. Do you think that the oral health conditions of your students in Cheung Chau are satisfactory?

- satisfactory
- not satisfactory

b. What assistance should be provided to improve the condition?

- professional help
- provide more information - what form
- what is the present source of the information
  - school?
  - books?

E. OPINIONS RE: PROFESSIONAL SERVICES

1 a. When did you last visit a dentist?

b. What was your reason for attendance?

2. a. Would you like to pay more frequent visits to a dentist?

b. What is your reason for visiting the dentist?
- prevention of diseases
- receive treatment to improve oral

c. What is your reason for not seeing the dentist?
- not necessary
- acceptability - cannot accept the image of a dentist
- availability of dentist - not enough in Cheung Chau
- accessibility - too expensive
  - time consuming
  - too far away

3. What is your personal opinion re: School Dental Service?
Would you let your children join?

Reasons
- Prevention is good
- Free services should be utilized

- too troublesome
- not necessary

4. What is the precentage of students joining the scheme?

   What is the general opinion of students in joining the scheme?

   for: - can be free from lessons
        - can have a trip away from Cheung Chau
        - good fun
        - know the importance of oral health, prevention professional help.

   against: - afraid of dentists
            - not necessary

5. Do you think there are enough dentists in Cheung Chau?

   - enough
   - not enough

   - What extra services should be provided?
   - How many more is appropriate?

6. Why do you think so few people in Cheung Chau go to the dentist?

   - Barriers
   - Problems
   - Perceptions

   re: Dentists

7. Where do they get relief from pain?
   Who treats them?

8. What should be done in your opinion to promote dental care among the people of Cheung Chau?

(1) J 2 [ ][ ][ ] Study Number (5) Date ..... 19 (6) [ ][ ] (7) Registration Number (8) [ ][ ][ ][ ] (11) Examination Number (12) (for duplicates)

PERSONAL AND DEMOGRAPHIC INFORMATION

Sex M = 1 F = 2 ..... (13) [ ]

Name ..... family ..... other

Age in years ..... (14) [ ][ ] (15)

Geographic location ..... (18) [ ][ ] (19)

Ethnic group ..... (16) [ ]

Examiner ..... (20) [ ]

Occupation ..... (17) [ ]

OTHER CONDITIONS
(to be specified by investigator)

..... (22) [ ]

..... (23) [ ]

DENTURE STATUS

Wearing (28) [ ] Need (29) [ ]

0 = None
1 = Upper
2 = Lower
3 = Both

FLUOROSIS ..... (24) [ ]

Codes: 0 = Normal 1 = Questionable
2 = Very Mild 3 = Mild
4 = Moderate 5 = Severe

ORAL MUCOSA ..... (25) [ ]
(Specify)

Other ..... (26) [ ]
(Specify)

DENTOFACIAL ANOMALY ..... (27) [ ]

0 = Absent 1 = Present 2 = Treatment Need

COMMUNITY PERIODONTAL INDEX OF TREATMENT NEEDS

Codes: 0 = healty
1 = bleeding
2 = calculus
3 = pocket 4 or 5 mm black band partially visible
4 = pocket ≥ 6 mm black band not visible

17/16 11 26/27
(42) [ ][ ][ ] (44)
(45) [ ][ ][ ] (47)
47/46 31 36/37

Cancel sextants not coded [X]

There must be 2 or more teeth present and not indicated for extraction in a sextant.

Card No (80) [1]

DENTAL CARIES STATUS AND TREATMENT OF TEETH

		R															L		
		18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28		
					55	54	53	52	51	61	62	63	64	65					
CARIES	(13)																	(28)	CARIES
TREATMENT	(29)																	(44)	TREATMENT
		48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38		
					85	84	83	82	81	71	72	73	74	75					
CARIES	(45)																	(60)	CARIES
TREATMENT	(61)																	(76)	TREATMENT

STATUS	PRIMARY	PERM.	TREATMENT	
SOUND	A	0	NONE	0
DECAYED	B	1	RESTORATIONS	
FILLED & CARIES FREE	C	2	1 surface	1
FILLED WITH PRIMARY DECAY	D	3	2 surface	2
FILLED WITH SECONDARY DECAY	E	4	3 surface	3
PRIMARY TEETH MISSING DUE CARIES < 9 yrs	M	-	> 3 surface or crown	4
PERMANENT TEETH MISSING DUE CARIES (UNDER 30 YEARS ONLY)	-	5	EXTRACTION FOR	
PERMANENT TEETH MISSING ANY REASON OTHER THAN CARIES (UNDER 30 YEARS ONLY)	-	6	caries	5
			periodontal disease	6
			dentures	7
PERMANENT TEETH MISSING ANY REASON (30 YEARS & OLDER)	-	7	other reason	8
UNERUPTED TOOTH	-	8	OTHER (specify)	9
EXCLUDED TOOTH	X	9		

CARD No. (80) 4